

Advanced Athermal Telescopes, Phase I

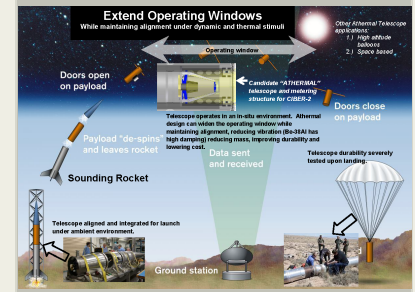
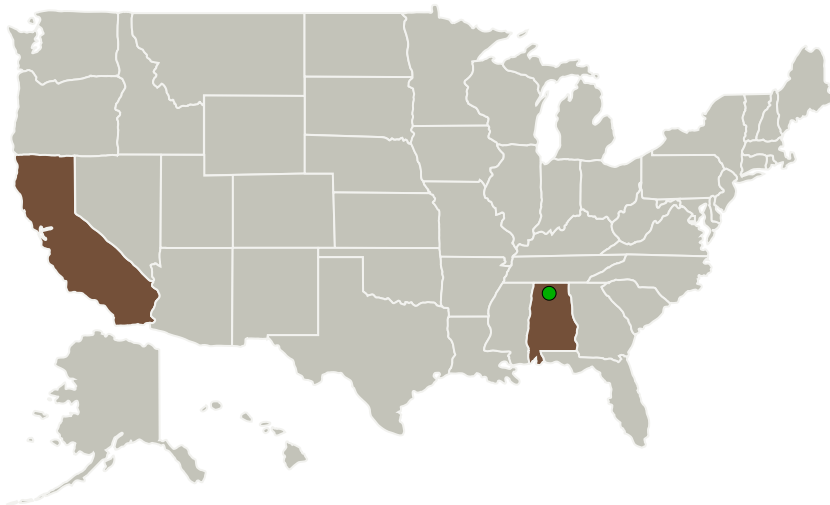
Completed Technology Project (2017 - 2017)



Project Introduction

This proposed innovative athermal telescope design uses advanced lightweight and high-stiffness material of Beryllium-Aluminum (Be-38Al). Peregrine's expertise with Be-38Al, Electroless Nickel and Liquid Interfaced Diffusion (LID) Bonding leveraged by Rochester Institute of Technology's experience with Optical Systems for sounding rocket instruments will provide synergy in this visionary development. Be-38Al seamlessly joined through our proficiency in LID Bonding will produce an athermal telescope that can fully operate in any in-situ environment whether in the laboratory or on-orbit while maintaining alignment. This innovative design and application of advanced fabrication processes like LID Bonding will allow athermal telescopes to be aligned at room temperature and then maintain that alignment and performance as they reach low operating temperatures. A "monolithic" metering structure of Beryllium-Aluminum used within an athermal telescope design would give sounding rocket applications and in-situ telescopes for high altitude balloons and space the ability to align telescopes at ambient temperatures and also have those positional alignments maintained through launches and their entire mission life.

Primary U.S. Work Locations and Key Partners



Advanced Athermal Telescopes, Phase I Briefing Chart Image

Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Images	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	2
Technology Areas	3
Target Destinations	3

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Completed Technology Project (2017 - 2017)

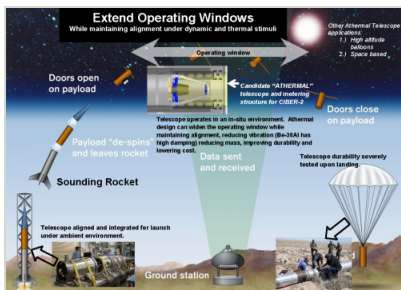


Organizations Performing Work	Role	Type	Location
The Peregrine Falcon Corporation	Lead Organization	Industry	Pleasanton, California
● Marshall Space Flight Center (MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations

Alabama	California
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Images



Briefing Chart Image

Advanced Athermal Telescopes,
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(<https://techport.nasa.gov/image/130895>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

The Peregrine Falcon Corporation

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

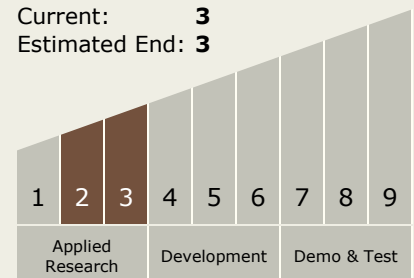
Robert Hardesty

Technology Maturity (TRL)

Start: 2

Current: 3

Estimated End: 3



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Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.2 Observatories
 - └ TX08.2.1 Mirror Systems

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System